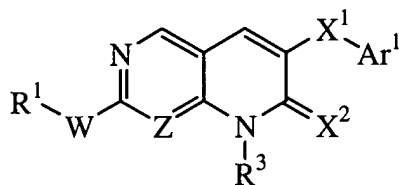
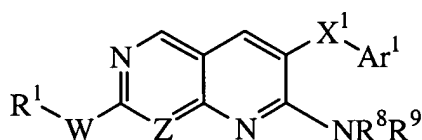


WHAT IS CLAIMED IS:

1. A compound of the Formula I or II



Formula I



Formula II

- 10 or pharmaceutically acceptable salts thereof,
wherein:

Z is N or CH;

W is NR²;

- 15 X¹ is O, NR⁴ (where R⁴ is hydrogen or alkyl), S, or CR⁵R⁶ (where R⁵ and R⁶
are independently hydrogen or alkyl) or C=O;

X² is O or NR⁷;

Ar¹ is aryl or heteroaryl;

- 20 R² is hydrogen alkyl, acyl, alkoxycarbonyl, aryloxycarbonyl,
heteroalkylcarbonyl, heteroalkyloxycarbonyl or -R²¹-R²² where R²¹ is alkylene or -C(=O)-
and R²² is alkyl or alkoxy;

- 25 R¹ is hydrogen, alkyl, haloalkyl, aryl, aralkyl, heteroaryl, heteroaralkyl,
cycloalkyl, cycloalkylalkyl, heteroalkylsubstituted cycloalkyl, heterosubstituted cycloalkyl,
heteroalkyl, cyanoalkyl, heterocyclyl, heterocyclylalkyl, R¹²-SO₂-heterocycloamino (where
R¹² is haloalkyl, aryl, aralkyl, heteroaryl or heteroaralkyl), -Y¹-C(O)-Y²-R¹¹ (where Y¹ and
Y² are independently either absent or an alkylene group and R¹¹ is hydrogen, alkyl, haloalkyl,

hydroxy, alkoxy, amino, monoalkylamino or dialkylamino), (heterocyclyl)(cycloalkyl)alkyl or (heterocyclyl)(heteroaryl)alkyl;

5 R^3 is hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, aryl, aralkyl, haloalkyl, heteroalkyl, cyanoalkyl, alkylene-C(O)- R^{31} (where R^{31} is hydrogen, alkyl, hydroxy, alkoxy, amino, monoalkylamino or dialkylamino), amino, monoalkylamino, dialkylamino or NR^{32} - Y^3 - R^{33} (where Y^3 is -C(O), -C(O)O-, -C(O)NR³⁴, S(O)₂ or S(O)₂NR³⁵; R^{32} , R^{34} and R^{35} are independently hydrogen or alkyl; and R^{33} is hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, heteroalkyl or optionally substituted phenyl) or acyl;

R^7 is hydrogen or alkyl; and

10 R^8 and R^9 are independently hydrogen, alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroalkyl, alkylsulfonyl, arylsulfonyl, -C(O)- R^{81} (where R^{81} is alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroalkyl, alkoxy, aryloxy, amino, mono- or di-alkylamino, arylamino or aryl(alkyl)amino) or R^8 and R^9 together form =CR⁸²R⁸³ (where R^{82} and R^{83} are independently hydrogen, alkyl, cycloalkyl, cycloalkylalkyl or optionally substituted phenyl).
15 or pharmaceutically acceptable salts thereof,

2. The compound of Claim 1,

wherein:

20 Z is N or CH;

W is NR² or O;

X^1 is O, NR⁴ (where R^4 is hydrogen or alkyl), S, or CR⁵R⁶ (where R^5 and R^6 are independently hydrogen or alkyl) or C=O;

X^2 is O or NR⁷;

25 Ar¹ is aryl or heteroaryl;

R^2 is hydrogen or alkyl;

R^1 is hydrogen, alkyl, haloalkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroalkylsubstituted cycloalkyl, heterosubstituted cycloalkyl, heteroalkyl, cyanoalkyl, heterocyclyl, heterocyclylalkyl, -Y¹-C(O)-Y²- R^{11} (where Y¹ and Y² are independently either
30 absent or an alkylene group and R^{11} is hydrogen, alkyl, haloalkyl, hydroxy, alkoxy, amino,

monoalkylamino or dialkylamino), (heterocyclyl)(cycloalkyl)alkyl or (heterocyclyl)(heteroaryl)alkyl;

R^3 is hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, aryl, aralkyl, haloalkyl, heteroalkyl, cyanoalkyl, alkylene- $C(O)-R^{31}$ (where R^{31} is hydrogen, alkyl, hydroxy, alkoxy, amino, monoalkylamino or dialkylamino), amino, monoalkylamino, dialkylamino or $NR^{32}-Y^3-R^{33}$ (where Y^3 is $-C(O)$, $-C(O)O-$, $-C(O)NR^{34}$, $S(O)_2$ or $S(O)_2NR^{35}$; R^{32} , R^{34} and R^{35} are independently hydrogen or alkyl; and R^{33} is hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, heteroalkyl or optionally substituted phenyl) or acyl;

R^7 is hydrogen or alkyl; and

R^8 and R^9 are independently hydrogen, alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroalkyl, alkylsulfonyl, arylsulfonyl, $-C(O)-R^{81}$ (where R^{81} is alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroalkyl, alkoxy, aryloxy, amino, mono- and dialkylamino, arylamino or aryl(alkyl)amino) or R^8 and R^9 together form $=CR^{82}R^{83}$ (where R^{82} and R^{83} are independently hydrogen, alkyl, cycloalkyl, cycloalkylalkyl or optionally substituted phenyl).

3. The compound of Claim 2, wherein Z is N.

4. The compound of Claim 3, wherein W is NH.

5. The compound of Claim 4, wherein Ar^1 is optionally substituted phenyl.

6. The compound of Claim 5, wherein X^1 is O or CH_2 .

7. The compound of Claim 6, wherein X^1 is O.

8. The compound of Claim 7 wherein R^1 is aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroalkylsubstituted cycloalkyl, heterosubstituted cycloalkyl, heteroalkyl, heterocyclyl or heterocyclylalkyl.

9. The compound of Claim 8, wherein R^1 is heteroalkylsubstituted cycloalkyl, heterosubstituted cycloalkyl, heteroalkyl or heterocyclyl.

10. The compound of Claim 9, wherein R¹ is heterocyclyl.
11. The compound of Claim 9, wherein R¹ is heteroalkyl.
12. The compound of Claim 11, wherein R¹ is hydroxyalkyl.
- 5
13. The compound of Claim 9, wherein Ar¹ is 2-substituted-phenyl, 4-substituted-phenyl or 2,4-disubstituted-phenyl.
14. The compound of Claim 13, wherein Ar¹ is 2-chlorophenyl, 2-fluorophenyl, 2-methylphenyl, 2-fluoro-4-methylphenyl, 4-fluoro-2-methyl or 2,4-difluorophenyl.
- 10
15. The compound of Claim 8 of Formula I, wherein X² is O and R³ is methyl.
- 15
16. The compound of Claim 15, wherein R¹ is heteroalkylsubstituted cycloalkyl, heterosubstituted cycloalkyl, heteroalkyl or heterocyclyl.
17. The compound of Claim 16, wherein R¹ is heterocyclyl.
18. The compound of Claim 16, wherein R¹ is heteroalkyl.
19. The compound of Claim 18, wherein R¹ is hydroxyalkyl.
- 20
20. The compound of Claim 16 wherein Ar¹ is 2-substituted-phenyl, 4-substituted-phenyl or 2,4-disubstituted-phenyl.
21. The compound of Claim 20, wherein Ar¹ is 2-chlorophenyl, 2-fluorophenyl, 2-methylphenyl, 2-fluoro-4-methylphenyl or 2,4-difluorophenyl.
22. The compound of Claim 8 of Formula I, wherein X² is NR⁷ and R³ is methyl.
- 25
23. The compound of Claim 22, wherein R¹ is heteroalkylsubstituted cycloalkyl, heterosubstituted cycloalkyl, heteroalkyl or heterocyclyl.
24. The compound of Claim 23, wherein R¹ is heterocyclyl.
25. The compound of Claim 23, wherein R¹ is heteroalkyl.
- 30
26. The compound of Claim 25, wherein R¹ is hydroxyalkyl.

27. The compound of Claim 23, wherein Ar¹ is 2-substituted-phenyl, 4-substituted-phenyl or 2,4-disubstituted-phenyl.

28. The compound of Claim 27, wherein Ar¹ is 2-chlorophenyl, 2-fluorophenyl, 2-methylphenyl, 2-fluoro-4-methylphenyl or 2,4-difluorophenyl.

29. The compound of Claim 8 of Formula II, wherein R⁸ is hydrogen and R⁹ is alkyl, alkylsulfonyl or -C(O)-R⁸¹ (where R⁸¹ is alkyl, alkoxy, aryloxy, amino, monoalkylamino or dialkylamino).

30. The compound of Claim 29, wherein R¹ is heteroalkylsubstituted cycloalkyl, heterosubstituted cycloalkyl, heteroalkyl or heterocyclyl.

31. The compound of Claim 30, wherein R¹ is heterocyclyl.

32. The compound of Claim 31, wherein R¹ is heteroalkyl.

33. The compound of Claim 32, wherein R¹ is hydroxyalkyl.

34. The compound of Claim 30, wherein Ar¹ is 2-substituted-phenyl, 4-substituted-phenyl or 2,4-disubstituted-phenyl.

35. The compound of Claim 35, wherein Ar¹ is 2-chlorophenyl, 2-fluorophenyl, 2-methylphenyl, 2-fluoro-4-methylphenyl or 2,4-difluorophenyl.

36. The compound of Claim 21, wherein Ar¹ is 2,4-difluoro-phenyl and R¹ is tetrahydro-2H-pyran-4-yl, i.e., 6-(2,4-difluorophenoxy)-8-methyl-2-(tetrahydro-2H-pyran-4-ylamino)pyrido[2,3-*d*]pyrimidin-7(8*H*)-one.

37. The compound of Claim 21, wherein Ar¹ is 2,4-difluoro-phenyl and R¹ is tetrahydro-2H-pyran-4-yl, i.e., 6-(2,4-difluorophenoxy)-8-propyl-2-(tetrahydro-2H-pyran-4-ylamino)pyrido[2,3-*d*]pyrimidin-7(8*H*)-one.

38. The compound of Claim 21, wherein Ar¹ is 2,4-difluoro-phenyl and R¹ is tetrahydro-2H-pyran-4-yl, i.e., 6-(2,4-difluorophenoxy)-8-cyclopropyl-2-(tetrahydro-2H-pyran-4-ylamino)pyrido[2,3-*d*]pyrimidin-7(8*H*)-one.

39. The compound of Claim 19, wherein Ar¹ is 2,4-difluorophenyl and R¹ is 1,3-dimethyl-3-hydroxy-butyl, i.e., 6-(2,4-Difluoro-phenoxy)-2-(3-hydroxy-1,3-dimethyl-butylamino)-8-methyl-8H-pyrido[2,3-*d*]pyrimidin-7-one.

40. The compound of Claim 39 that is 6-(2,4-Difluoro-phenoxy)-2-(3-hydroxy-1(*S*),3-dimethyl-butylamino)-8-methyl-8H-pyrido[2,3-*d*]pyrimidin-7-one.

41. The compound of Claim 39 that is 6-(2,4-Difluoro-phenoxy)-2-(3-hydroxy-1(R),3-dimethyl-butylamino)-8-methyl-8H-pyrido[2,3-d]pyrimidin-7-one.

42. The compound of Claim 1 of Formula I, wherein:

5 R^2 is acyl, alkoxycarbonyl, aryloxycarbonyl, heteroalkylcarbonyl, heteroalkyloxycarbonyl or $-R^{21}-R^{22}$ where R^{21} is alkylene or $-C(=O)-$ and R^{22} is alkyl or alkoxy.

43. The compound of Claim 42, wherein R^1 is heteroalkyl or heterocyclyl.

44. The compound of Claim 43, wherein, R^1 is heterocyclyl.

10 45. The compound of Claim 44, wherein X^1 is O, X^2 is O and R^3 is methyl.

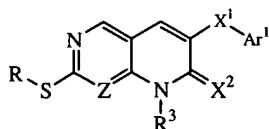
46. The compound of Claim 45, wherein R^2 is acyl.

47. The compound of Claim 46, wherein Ar^1 is 2,4-difluoro-phenyl, R^1 is tetrahydro-2H-pyran-4-yl and R^2 is acetyl

48. A composition comprising:

15 (a) a pharmaceutically acceptable excipient; and
(b) a compound of Claim 1 or pharmaceutically acceptable salts thereof.

49. A method for preparing a sulfide compound of the formula:



20 wherein:

Z is N or CH;

X^1 is O, NR^4 (where R^4 is hydrogen or alkyl), S, CR^5R^6 (where R^5 and R^6 are independently hydrogen or alkyl) or $C=O$;

25 X^2 is O;

Ar^1 is aryl or heteroaryl;

R is alkyl or aryl;

R^3 is hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, aryl, aralkyl, haloalkyl, heteroalkyl, cyanoalkyl, acyl, alkylene- $C(O)-R^{31}$ (where R^{31} is hydrogen, alkyl, hydroxy,

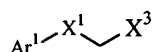
alkoxy, amino, monoalkylamino or dialkylamino), amino, monoalkylamino, dialkylamino or $\text{NR}^{32}\text{-Y}^3\text{-R}^{33}$ (where Y^3 is $-\text{C}(\text{O})$, $-\text{C}(\text{O})\text{O}-$, $-\text{C}(\text{O})\text{NR}^{34}$, $\text{S}(\text{O})_2$ or $\text{S}(\text{O})_2\text{NR}^{35}$; R^{32} , R^{34} and R^{35} are independently hydrogen or alkyl; and R^{33} is hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, heteroalkyl or optionally substituted phenyl);

5 said method comprising the steps of:

contacting an aldehyde of the formula:



with an aryl compound of the formula:



10

wherein

X^3 is $-\text{C}(=\text{O})-\text{OR}'$ and R' is alkyl,

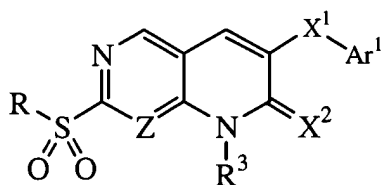
under conditions sufficient to produce said sulfide compound.

50. The method of Claim 49, wherein Z is N

51. The method of Claim 50, wherein R^3 is hydrogen.

15

52. The method of Claim 49 further comprising producing a sulfonyl compound of the formula:



20

wherein

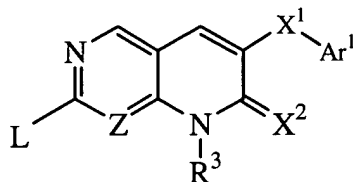
R , Z , R^3 , X^1 , X^2 and Ar^1 are as defined in Claim 36,

comprising exposing said sulfide compound to oxidizing conditions to produce said sulfonyl compound.

53. The method of Claim 52, wherein said oxidizing conditions comprise MCPBA, Oxone[®], periodate or a rhenium peroxide species.

54. A method of preparing a compound of Formula I of Claim 1 comprising the steps of:

5 contacting a compound of Formula IV

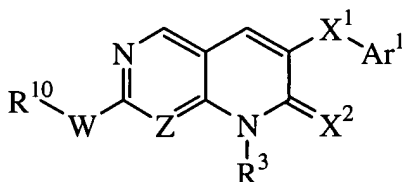


where L is a leaving group;
with an amine R¹R²NH under nucleophilic displacement conditions.

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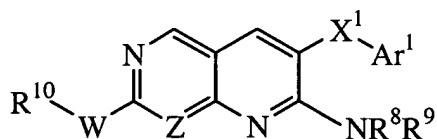
55. The method of Claim 54, wherein L is a group RS(O)_n- where R is an alkyl or phenyl group and n is an integer from 0 to 2.

56. A compound of Formula I' or II''



15

Formula I'



Formula II''

wherein:

20

Z is N or CH;

W is S, S(O), S(O)₂ or O;

X¹ is O, NR⁴ (where R⁴ is hydrogen or alkyl), S, or CR⁵R⁶ (where R⁵ and R⁶ are independently hydrogen or alkyl) or C=O;

X^2 is O or NR^7 ;

Ar^1 is aryl or heteroaryl;

R^{10} is alkyl, aryl, aralkyl, cycloalkyl or cycloalkylalkyl, or $R^{10}W$ together form a leaving group or hydroxy;

5 R^3 is hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, aryl, aralkyl, haloalkyl, heteroalkyl, cyanoalkyl, alkylene- $C(O)-R^{31}$ (where R^{31} is hydrogen, alkyl, hydroxy, alkoxy, amino, monoalkylamino or dialkylamino), amino, monoalkylamino, dialkylamino or $NR^{32}-Y^3-R^{33}$ (where Y^3 is $-C(O)$, $-C(O)O-$, $-C(O)NR^{34}$, $S(O)_2$, or $S(O)_2NR^{35}$; R^{32} , R^{34} and R^{35} are independently hydrogen or alkyl; and R^{33} is hydrogen, alkyl, cycloalkyl, cycloalkylalkyl, heteroalkyl or optionally substituted phenyl) or acyl;

R^7 is hydrogen or alkyl; and

R^8 and R^9 are independently hydrogen, alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroalkyl, alkylsulfonyl, arylsulfonyl, $-C(O)-R^{81}$ (where R^{81} is alkyl, aryl, aralkyl, cycloalkyl, cycloalkylalkyl, heteroalkyl, alkoxy, aryloxy, amino, mono- and di-alkylamino, arylamino or aryl(alkyl)amino) or R^8 and R^9 together form $=CR^{82}R^{83}$ (where R^{82} and R^{83} are independently hydrogen, alkyl, cycloalkyl, cycloalkylalkyl or optionally substituted phenyl).

20 57. A method for treating p38 mediated disorder comprising administering to a patient in need of such treatment, an effective amount of a compound of Claim 1.

58. The method of Claim 57, wherein said p38 mediated disorder is arthritis, Crohns disease, irritable bowel syndrome adult respiratory distress syndrome or chronic obstructive pulmonary disease.

25 59. The method of Claim 57, wherein said p38 mediated disorder is Alzheimer's disease.

* * * * *